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FACSIMILE COVER SHEET

TO:	Magdalen Greenlief The Office of Commissioner of Patents
FROM:	Leonard P. Diana
RE:	PPH Pilot Program U.S. Patent Appln. No. 10/601,678 Our Ref.: 01272.020594
FAX NO.:	571-273-0125
DATE:	May 15, 2007 **NO. OF PAGES:** 83 *(including cover page)*
TIME:	**SENT BY:**

MESSAGE

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PTO/SB/20 (05-06)
Approved for use through XX/XX/XXXX. OMB 0651-00XX
U.S. Patent and Trademark Office: U.S DEPARTMENT OF COMMERCE

REQUEST FOR PARTICIPATION IN THE PATENT PROSECUTION HIGHWAY (PPH) PILOT PROGRAM BETWEEN THE JPO AND THE USPTO

Application No.:	10/601,678	First Named Inventor:	MITSUHIRO SUGETA
Filing Date:	June 24, 2003	Attorney Docket No.:	01272.020594
Title of the Invention:	IMAGE READING APPARATUS		

THIS REQUEST FOR PARTICIPATION IN THE PPH PILOT PROGRAM MUST BE FAXED TO:
THE OFFICE OF THE COMMISSIONER FOR PATENTS AT 571-273-0125 DIRECTED TO THE ATTENTION OF MAGDALEN GREENLIEF

APPLICANT HEREBY REQUESTS PARTICIPATION IN THE PATENT PROSECUTION HIGHWAY (PPH) PILOT PROGRAM AND PETITIONS TO MAKE THE ABOVE-IDENTIFIED APPLICATION SPECIAL UNDER THE PPH PILOT PROGRAM.

The above-identified application validly claims priority under 35 U.S.C. 119(a) and 37 CFR 1.55 to one or more corresponding JPO application(s).

The JPO application number(s) is/are: 2002-197864
The filing date of the JPO application(s) is/are: July 5, 2002

I. List of Required Documents:

a. **A copy of all JPO office actions (including "Decision to Grant a Patent") in the above-identified JPO application(s).**

☒ Is attached.

☐ Is available via Dossier Access System. Applicant hereby requests that the USPTO obtain these documents via the Dossier Access System.

b. **A copy of all claims which were determined to be patentable by the JPO in the above-identified JPO application(s).**

☒ Is attached.

☐ Is available via Dossier Access System. Applicant hereby requests that the USPTO obtain these documents via the Dossier Access System.

c. **English translations of the documents in a. and b. above along with a statement that the English translations are accurate are attached.**

d. **Information disclosure statement listing the documents cited in the JPO office actions is attached.**

Copies of all documents are attached except for U.S. patents or U.S. patent application publications.

REQUEST FOR PARTICIPATION IN THE PATENT PROSECUTION HIGHWAY (PPH) PILOT PROGRAM BETWEEN THE JPO AND THE USPTO

(continued)

Application No.:	10/601,678	First Named Inventor:	MITSUHIRO SUGETA

II. Claims Correspondence Table:

Claims in US Application	Patentable Claims in JP Application	Explanation regarding the correspondence
15	1	Both claims are the same except U.S. uses "means" instead of "unit".
16	2	Same as above.
17	3	Same as above but claims of JPO contains printing errors.
18	4	Same as above.
19	5	Same as above.

III. All the claims in the US application sufficiently correspond to the patentable/allowable claims in the JPO application.

IV. Payment of Fees:

The Commissioner is hereby authorized to charge the petition fee under 37 CFR 1.17(h) as required by 37 CFR 1.102(d) to ☒ Deposit Account No. 06-1205.

☐ **Credit Card. Credit Card Payment Form (PTO-2038) is attached.**

Signature		Date	May 15, 2007
Name (Print/Typed)	LEONARD P. DIANA	Registration Number	29,296

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

01272.020594. PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	Examiner: Aung Soc Moe
MITSUHIRO SUGETA	)	Art Unit: 2625
Application No.: 10/601,678	)	Conf. No.: 9503
Filed: June 24, 2003	)	
For: IMAGE READING APPARATUS	)	May 15, 2007

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

LETTER SUBMITTING PAPERS UNDER PPH PILOT PROGRAM

Sir:

Applicant hereby requests accelerated examination of the above-identified application under the Patent and Trademark Office's Patent Prosecution Highway (PPH) Pilot Program based on allowed claims of the Japanese application from which the present application claims priority under 35 U.S.C. § 119. Submitted herewith are the following documents for the accelerated examination:

1) Request For Participation in PPH Pilot Program (Form PTO/SB/20)
2) Japanese Final (allowed) Claims (in Japanese)
3) English translation of Japanese Final (allowed) Claims
4) Reason for Refusal (in Japanese)
5) English translation of Reason for Refusal
6) Japanese Amendment (in Japanese)
7) English translation of Japanese Amendment
8) Argument in Japanese
9) English translation of Argument
10) Decision of Refusal (in Japanese)
11) English translation of Decision of Refusal
12) Appeal (in Japanese)
13) English translation of Appeal
14) Second Japanese Amendment (in Japanese)

15) English translation of second Japanese Amendment
16) Verification of translations
17) Preliminary Amendment

The references of record in the counterpart Japanese application have previously been cited in an Information Disclosure Statement in the present application.

While it is not believed that a separate Petition to make special is required and that the Request (document 1) fulfills the requirements for such a Petition, should the Office determine that a separate Petition is required, this Letter should be treated as a Petition to make the application special under the Office's PPH Pilot Program. As set forth in the Request, the Petition fee should be charged to Deposit Account 06-1205.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

Leonard P. Diana
Attorney for Applicant
Registration No. 29,296

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3800
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NY_MAIN 634218v1

Japanese Patent No. 3715952

[Claims]

[Claim 1]

An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

current-detecting means for detecting a current running in the LED array, the current-detecting means being drive-controlled by the drive control means; and

determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that scanning is to be permitted or prohibited on the basis of a comparison result,

wherein if no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited, and

wherein if the detected current value does not exceed the predetermined current threshold and the predetermined number of LED blocks including a faulty LED are not aligned, the determining means determines that scanning is to be permitted.

[Claim 2]

The image reading apparatus according to Claim 1, wherein when a power supply is turned on, the determining means is executed before adjustment, such as an analog process or shading correction.

[Claim 3]

An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and for permitting the reading operation unless the LED block adjacent to the LED block where the detection unit

has detected any faulty LED elements has any faulty LED elemcnts.

[Claim 4]

The image reading apparatus according to Claim 3, further comprising a failure number detection unit that acquires the number of faulty LED elements in each LED block, wherein the control means prohibits the reading operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

[Claim 5]

The image reading apparatus according to Claim 3, further comprising display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control unit.

(19)日本国特許庁(JP)　(12)特　許　公　報(B2)　(11)特許番号
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(P3715952)
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請求項の数 5　(全 9 頁)

(21)出願番号　特願2002-197864(P2002-197864)
(22)出願日　平成14年7月5日(2002.7.5)
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前置審査

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審査官　日下　善之

最終頁に続く

(54)【発明の名称】画像読取装置

(57)【特許請求の範囲】
【請求項１】
複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、
前記駆動制御手段により駆動制御して前記ＬＥＤアレイを流れる電流を検出する電流検出手段と、
前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し比較結果に基づきスキャンの可、及び不可を判定する判定手段とを有し、
前記判定手段は、前記電流検出手段により電流が検出されない場合、及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定し、
検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいない場合には、スキャン可と判定する
ことを特徴とする画像読取装置。
【請求項２】
請求項１において、前記判定手段は、電源ＯＮされてから、アナプロ調整やシェーディング補正等の調整の前に実行されることを特徴とする画像読取装置。
【請求項３】
複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、
前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、
前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障している場合には読み取り動作の実行を許可せず、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障していない場合には読み取り動作の実行を許可する制御手段と
を有することを特徴とする画像読取装置。
【請求項４】
請求項３において、前記ＬＥＤブロック内の故障しているＬＥＤ素子の数を求める故障数検出部をさらに備え、前記制御手段は、前記ＬＥＤブロック内で故障しているＬＥＤ素子が前記故障数検出手段によって所定数よりも多く検出された場合、読み取り動作を実行しないようにすることを特徴とする画像読取装置。
【請求項５】
請求項３において、前記制御部によって読み取り動作が実行されないとき、前記ＬＥＤアレイが故障していることを示す警告を表示する表示手段をさらに備えることを特徴とする画像読取装置。

CFC00594US
OUR COMMENT
January 18, 2007

There are typo in Japanese Final Claims in Granted Publication (attachment No.2). They are shown as follows (marked with RED).

We translated Japanese Final Claims into English literally, but "unit" should be read "means".

[Claim 3]

An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting a reading operation if an LED block adjacent to an LED block where the detection **unit** has detected any faulty LED elements has any faulty LED elements and for permitting the reading operation unless the LED block adjacent to the LED block where the detection **unit** has detected any faulty LED elements has any faulty LED elements.

[Claim 4]

The image reading apparatus according to Claim 3, further comprising a failure number detection **unit** that acquires the number of faulty LED elements in each LED block, wherein the control means prohibits the reading operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

CFC00594US
OUR COMMENT
January 18, 2007

[Claim 5]

The image reading apparatus according to Claim 3, further comprising display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control unit.

Reference No. 4540034 Dispatch No. 082419
Dispatch Date: March 4, 2005

Notification of Reason for Refusal

Patent Application No.	2002-197864
Drafting Date	February 24, 2005
JPO Examiner	Yoshiyuki KUSAKA 8323 5V00
Agent	Yoshikazu TANI (one other)
Applied Provision	Patent Law Section 29(2)

This application is refused for the reason mentioned below. If the applicant has any argument against the reason, such argument should be submitted within 60 days from the date on which this notification was dispatched.

Reason

The inventions in the claims noted below of the subject application are unpatentable under Patent Law Section 29(2) since they could have been easily made by persons who have common knowledge in the technical field to which the inventions pertain, on the basis of the inventions described in the publications below which were distributed prior to the filing of the subject application or the inventions made available to the public through telecommunication lines prior to the filing of the subject application in Japan or other countries.

Note (The list of cited documents etc. is provided below)

- Claim 8
- Cited Document 1
- Remark

Cited document 1 describes that failure of an LED of an image reading apparatus is determined by reading a reference

white base.

· Claims 1 to 7
· Cited Documents 1 and 2
· Remark

It is a common practice to detect failure from a current running in an LED, as described in cited document 2.

In addition, cited document 2 also describes that a current value is compared with a failure threshold in an operation mode.

List of cited documents

1. Japanese Patent Laid-Open No. 11-275310
2. Japanese Patent Laid-Open No. 2000-222686

Record of the results of prior art search

·Technical field searched: IPC 7th Edition H04N1/00

·Prior art document

This record is not part of the reason for refusal.

Any inquiry concerning this notification or request for interview concerning this application should be directed to:

Static Image, Fourth Patent Examination Department
TEL: 03-3581-1101 (Ext. 3571)

整理番号:4540034 発送番号:082419 発送日:平成17年 3月 1日 1

拒絶理由通知書

特許出願の番号	特願２００２－１９７８６４
起案日	平成１７年 ２月２４日
特許庁審査官	Ｈ下 善之 ８３２３ ５Ｖ００
特許出願人代理人	谷 義一（外 １名） 様
適用条文	第２９条第２項

この出願は、次の理由によって拒絶をすべきものである。これについて意見があれば、この通知書の発送の日から６０日以内に意見書を提出して下さい。

理 由

この出願の下記の請求項に係る発明は、その出願前日本国内又は外国において頒布された下記の刊行物に記載された発明又は電気通信回線を通じて公衆に利用可能となった発明に基いて、その出願前にその発明の属する技術の分野における通常の知識を有する者が容易に発明をすることができたものであるから、特許法第２９条第２項の規定により特許を受けることができない。

記 （引用文献等については引用文献等一覧参照）

・請求項８
・引用文献１
・備考
引用文献１には、基準白地を読み取って画像読み取り装置のＬＥＤの故障を判断することが記載されている。

・請求項１－７
・引用文献１、２
・備考
ＬＥＤに流れる電流から故障を検出することも引用文献２に記載されているように常套手段である。
さらに、引用文献２には、電流値を稼働時の故障限界値と比較することも記載されている。

引 用 文 献 等 一 覧

１．特開平１１－２７５３１０号公報

整理番号:4540034 発送番号:082419 発送日:平成17年 3月 4日 2/E

２．特開２０００－２２２６８６号公報

先行技術文献調査結果の記録

・調査した分野　ＩＰＣ第７版　Ｈ０４Ｎ１／００

・先行技術文献

この先行技術文献調査結果の記録は、拒絶理由を構成するものではない。

この拒絶理由通知の内容に関するお問い合わせ、または面接のご希望がございましたら下記までご連絡下さい。

特許審査第４部静止画

ＴＥＬ．０３（３５８１）１１０１　内線３５７１

[Name of Document] Argument

[Reference No.] 4540034

[Date of Submission] April 22, 2005

[Addressee] JPO Examiner

[Description of the Case]

[Application No.] Patent Application No. 2002-197864

[Applicant]

[Id. No.] 000001007

[Name] CANON KABUSHIKI KAISHA

[Agent]

[Id. No.] 100077481

[Patent Attorney]

[Name] Yoshikazu TANI

[Dispatch Number] 082419

[Content of Argument]

[Content of Reason]

1. The reason stated in the notification of reason for refusal dated February 24, 2005 (dispatched on March 4, 2005) is as follows. The inventions in the claims noted below of the subject application are unpatentable under Patent Law Section 29(2) since they could have been easily made by persons who have common knowledge in the technical field to which the inventions pertain, on the basis of the inventions described in Japanese Patent Laid-Open No. 11-275310 (hereinafter, referred to as "cited document 1" and

Japanese Patent Laid-Open No. 2000-222686 (hereinafter, referred to as "cited document 2").

The reason will be described below.

Regarding Claim 8 and Cited Document 1

Cited document 1 describes that failure of an LED of an image reading apparatus is determined by reading a reference white base.

Regarding Claims 1 to 7 and Cited Documents 1 and 2

It is a common practice to detect failure from a current running in an LED, as described in cited document 2.

In addition, cited document 2 also describes that a current value is compared with a failure threshold in an operation mode.

2. Descriptions of the Inventions of the Subject Application

(1) The claims in the inventions of the subject application, which have been amended by the amendment submitted together with this argument, will be given below.

"[Claim 1] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that

scans a document, the image reading apparatus comprising:

current-detecting means for detecting a current running in the LED array, the current-detecting means being drive-controlled by the drive control means; and

determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that scanning is to be prohibited on the basis of a comparison result,

wherein if no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited."

"[Claim 3] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting scanning if the detection unit has detected failure of LED elements in two neighboring LED blocks."

"[Claim 7] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting a reading operation if the detecting means has detected more than a predetermined number of faulty LED elements in the LED block."

(2) Grounds for Amendment

(a) Regarding New Claim 1

The amendment "an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other" is based on Fig. 4.

The amendment "determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that

scanning is to be prohibited on the basis of a comparison result" is based on Fig. 6.

In the amendment "if no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited", the amendment "if no current is detected by the current-detecting means" is based on paragraph 0026 and S3 of Fig. 6, the amendment "if the detected current value exceeds the predetermined current threshold" is based on Fig. 6, and the amendment "if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited" is based on paragraphs 0031 and 0032 and Fig. 6.

(b) Regarding New Claim 2

New Claim 2 is moved from Old Claim 7.

(c) Regarding New Claim 3

The amendment "an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other" is based on

Fig. 4.

The amendment "detecting means for detecting failure of the LED elements in each of the LED blocks" is based on paragraph 0025.

The amendment "control means for prohibiting scanning if the detection unit has detected failure of LED elements in two neighboring LED blocks" is based on paragraph 0031.

(d) Regarding New Claim 4

The amendment "the control means prohibits a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and permits the reading operation unless the LED block adjacent to the LED block where the detection unit has detected any faulty LED elements has any faulty LED elements" is based on paragraphs 0031 and 0032 and Fig. 6.

(e) Regarding New Claim 5

The amendment "further comprising a failure number detection unit that acquires the number of faulty LED elements in each LED block, wherein the control means prohibits the reading operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block" is based on paragraphs 0027 to 0029.

(f) Regarding New Claim 6

The amendment "display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control means" is based on paragraph 0031.

(g) Regarding New Claim 7

The amendment "an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other" is based on Fig. 4.

The amendment "detecting means for detecting failure of the LED elements in each of the LED blocks" is based on paragraph 0025.

The amendment "control means for prohibiting a reading operation if the detecting means has detected more than a predetermined number of faulty LED elements in the LED block" is based on paragraphs 0027 to 0029.

(h) Regarding Paragraph 0015

The amendment "the white LED array 102 includes N blocks arranged in parallel with each other" is based on Fig. 4.

3. Comparison between the Inventions of the Subject Application and Cited Documents

Cited document 1 describes that an image reading

apparatus is provided in which LEDs in the colors of R, G, and B are arranged in parallel with each other (3, 4, and 5 in Fig. 1), in which a white base is read for each light source, and in which high gradation and reproducibility is achieved even if an output level of an image sensor varies due to a change in a use environment and a time-lapse change.

More specifically, if it is determined that the maximum value of image data is within a predetermined range, a lighting-up time is reset.

However, cited document 1 does not contain a description that failure detection is performed for each LED block including a plurality of LEDs connected in series with each other.

Cited document 2 describes that disconnection failure of an LED used for a light emission source of signal indication and failure due to short circuit are detected by accurately calculating a failure threshold of the LED without being influenced by the characteristics of the LED and the installation environment of signals.

More specifically, according to the inventions described in cited document 2, a light instrument L1 (light instruments L2 to L5 have a similar structure) includes a plurality of LED blocks connected in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, as

shown in Fig. 2. Failure caused by disconnection, short circuit, or partial disconnection of a light instrument is detected for each light instrument in accordance with a current value.

However, cited document 2 does not contain a description that failure detection is performed for each LED block including a plurality of LEDs connected in series with each other. A light instrument includes the plurality of LED blocks.

That is, in each of cited document 2 and the inventions of the subject application, an apparatus including LEDs detects failure caused by disconnection, short circuit, or partial disconnection in accordance with a current value. In this respect, cited document 2 and the inventions of the subject application correspond to each other. However, in cited document 2, determination is performed for each light instrument L, which includes a plurality of LED blocks connected in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other. When applied to Fig. 3(a) attached to the subject application, the light instrument L corresponds to the LED array 102, and determination of disconnection, short circuit, or partial disconnection of the LED array 102 is merely performed.

In the inventions of the subject application, failure

detection is performed for individual LED blocks of the LED array including a plurality of LED blocks arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other. In addition, even when a current value detected for a block does not exceed a predetermined current threshold, if a predetermined number of LED blocks including a faulty LED are aligned, it is determined that failure occurs and that scanning is to be prohibited, since an area that cannot receive a sufficient light intensity is generated. In this respect, the inventions of the subject application are different from cited documents 1 and 2.

As described above, the inventions of the subject application are configured different from cited documents 1 and 2, and advantages unique to the inventions of the subject application can be achieved by the configurations different from cited documents 1 and 2. Thus, the inventions of the subject application could not have been easily conceived from the technologies described in cited documents 1 and 2.

4. Conclusion

As described above, the reason that the inventions of the subject application could have been easily made from the inventions described in cited documents 1 and 2 is not valid

for the amended inventions.

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【理由の内容】
1 平成１７年２月２４日付（平成１７年３月４日発送）拒絶理由通知書に記載の理由は、この出願の下記の請求項に係る発明は、
特開平１１－２７５３１０号公報（以下「引用文献１」という。）
特開２０００－２２２６８６号公報（以下「引用文献２」という。）
に記載された発明に基づいて、当業者が容易に発明することができたものであるから、特許法第２９条第２項の規定により特許を受けることができない、というものです。
その理由は、
請求項８、引用文献１。
引用文献１には、基準白地を読み取って画像読み取り装置のＬＥＤの故障を判断することが記載されている。
請求項１－７、引用文献１、２。
ＬＥＤに流れる電流から故障を検出することも引用文献２に記載されているように常套手段である。
さらに、引用文献２には、電流値を稼動時の故障限界値と比較することも記載されている。
というものです。

2 本願発明の説明
（１）本願発明は、本意見書とともに提出した手続補正書により補正した特許請求の範囲、すなわち、
「【請求項１】 複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、
前記駆動制御手段により駆動制御して前記ＬＥＤアレイを流れる電流を検出する電流検出手段と、
前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し比較結果に基づきスキャン不可を判定する判定手段とを有し、
前記判定手段は、前記電流検出手段により電流が検出されない場合、及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定することを特徴とする画像読取装置。」、
「【請求項３】 複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、前記ＬＥＤブロックごとに前記ＬＥＤ素子

の故障を検出する検出手段と、
隣り合う２つの前記ＬＥＤブロックで前記検出部によって前記ＬＥＤ素子の故障を検出した場合、スキャンを実行しないようにする制御手段と
を有することを特徴とする画像読取装置。」、及び
「【請求項７】 複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、
前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、
前記ＬＥＤブロック内で所定数以上の前記ＬＥＤ素子が故障していることが前記検出手段により検出された場合、読み取り動作を実行しないようにする制御手段と
を有することを特徴とする画像読取装置。」
にあります。

（２）補正の根拠

ア 新請求項１について

「複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイ」との補正事項は、図４の記載に基づきます。

「前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し比較結果に基づきスキャン不可を判定する判定手段」との補正事項は、図６に基づきます。

「前記判定手段は、前記電流検出手段により電流が検出されない場合、及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定する」との補正事項において、「前記電流検出手段により電流が検出されない場合」との補正事項は、段落００２６の記載及び図６のＳ３に基づき、「検出された電流値が予め定めた電流閾値を超えている場合」との補正事項は、図６に基づき、「検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合、スキャン不可と判定する」との補正事項は、段落００３１及び００３２の記載並びに図６に基づきます。

イ 新請求項２について

新請求項２は、旧請求項７を繰り上げたものです。

ウ 新請求項３について

「複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイ」との補正事項は、図４に基づきます。

「前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段」との補正事項は、段落００２５の記載に基づきます。

「隣り合う２つの前記ＬＥＤブロックで前記検出部によって前記ＬＥＤ素子の故障を検出した場合、スキャンを実行しないようにする制御手段」との補正事項は、段落００３１の記載に基づきます。

エ 新請求項４について

「前記制御手段は、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障している場合には読み取り動作の実行を許可せず、前記検出部で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障していない場合には読み取り動作の実行を許可する」との補正事項は、段落００３１及び００３２並びに図６に基づきます。

オ 新請求項５について

「前記ＬＥＤブロック内の故障しているＬＥＤ素子の数を求める故障数検出部をさらに備え、前記制御手段は、前記ＬＥＤブロック内で故障しているＬＥＤ素子が前記故障数検出手段によって所定数よりも多く検出された場合、読み取り動作を実行しないようにする」との補正事項は、段落００２７乃至００２９の記載に基づきます。

カ 新請求項６について

「前記制御手段によって読み取り動作が実行されないとき、前記ＬＥＤアレイが故障していることを示す警告を表示する表示手段」との補正事項は、段落００３１の記載に基づきます。

キ 新請求項７について

「複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイ」との補正事項は、図４に基づきます。

「前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段」との補正事項は、段落００２５の記載に基づきます。

「前記ＬＥＤブロック内で所定数以上の前記ＬＥＤが故障していることが前記検出手段により検出された場合、読み取り動作を実行しないようにする制御手段」との補正事項は、段落００２７乃至００２９の記載に基づきます。

ク 段落００１５について

「Ｎ個のブロックを並列に並べた白色ＬＥＤアレイ１０２を構成したものであり」との補正事項は、図４に基づきます。

３ 本願発明と引用文献との対比

引用文献１には、Ｒ，Ｇ、ＢのＬＥＤを並列に並べ（図１の３、４、５）、光源ごとに白地の読み取りを行い、使用環境の変化や経年劣化によってイメージセンサの出力レベルが変動しても常に高い階調性、再現性を実現できる画像読み取り部を提供することが記載されています。

具体的には、画像データの最大値が所定の範囲内に入っていると判断した場合は、点灯時間の再設定を行うものであります。

しかしながら、複数のＬＥＤを直列接続したＬＥＤブロック毎に故障検知することについての記載はありません。

引用文献２には、ＬＥＤの特性や信号機の設置環境に左右されずに、ＬＥＤの故障限界値を正確に割り出して、信号現示の発光源に用いられたＬＥＤ断線故障、短絡による故障を検知する記載があります。

具体的には、引用文献２に記載の発明は、図２で示されるように、複数のＬＥＤを直列接続したＬＥＤブロックを複数個並列接続して灯器Ｌ１（灯器Ｌ２～Ｌ５も同様の構成）を構成し、この灯器単位で、電流値に基づいて、灯器の断線、短絡及び半断故障を検知するものであります。

しかしながら、この１つの灯器を構成する複数のＬＥＤを直列接続したＬＥＤブロック毎に故障検知することについての記載はありません。

つまり、引用文献２と本願発明とは、ＬＥＤを使った装置において、断線、短絡及び半断故障を電流値に基づいて検知する点では一致するが、引用文献２で判断をしている単位は、複数のＬＥＤを直列接続したＬＥＤブロックを複数個並列接続した灯器Ｌであって、本願添付図面の図３（ａ）についていえばＬＥＤアレイ１０２であり、このＬＥＤアレイ１０２の断線、短絡及び半断故障を判断しているに過ぎません。

本願発明は、複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイのＬＥＤブロック単位で故障検知を行い、さらに、ブロックとして検出された電流値が予め定めた電流閾値を超えない場合でも、故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、十分な光量が得られないエリアが生じてしまうので、故障と判断して、スキャン不可にするものであり、この点で、引用文献１及び２とは異なります。

このように、本願発明は、引用文献１及び２に記載の発明と構成が異なり、この異なる構成により本願発明特有の効果を奏することができるのであるから、本願発明は、引用文献１及び２に記載の技術から容易に想到することはできません。

４ むすび

以上のとおり、本願発明が引用文献１及び２に記載の発明から容易に発明することができたとする本理由は、補正後の発明について成り立ちません。

[Name of Document] Amendment

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[Addressee] Commissioner of the Patent Office

[Description of the Case]

[Application No.] Patent Application No. 2002-197864

[Person Submitting the Amendment]

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[Dispatch Number] 082419

[Amendment 1]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] Claims

[Manner of Amendment] Change

[Content of Amendment]

[Claims]

[Claim 1] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, and drive control means for performing

constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

current-detecting means for detecting a current running in the LED array, the current-detecting means being drive-controlled by the drive control means; and

determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that scanning is to be prohibited on the basis of a comparison result,

wherein if no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited.

[Claim 2] The image reading apparatus according to Claim 1, wherein when a power supply is turned on, the determining means is executed before adjustment, such as an analog process or shading correction.

[Claim 3] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for

performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting scanning if the detection unit has detected failure of LED elements in two neighboring LED blocks.

[Claim 4] The image reading apparatus according to Claim 3, wherein the control means prohibits a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and permits the reading operation unless the LED block adjacent to the LED block where the detection unit has detected any faulty LED elements has any faulty LED elements.

[Claim 5] The image reading apparatus according to Claim 4, further comprising a failure number detection unit that acquires the number of faulty LED elements in each LED block, wherein the control means prohibits the reading operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

[Claim 6] The image reading apparatus according to Claim 4, further comprising display means for displaying an

LED-array failure warning thereon when the reading operation is prohibited by the control means.

[Claim 7] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting a reading operation if the detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

[Claim 8] The image reading apparatus according to Claim 7, further comprising display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control means.

[Amendment 2]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0005

[Manner of Amendment] Change

[Content of Amendment]

[0005]

[Means for Solving the Problems]

According to the invention of Claim 1, an image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document includes current-detecting means for detecting a current running in the LED array, the current-detecting means being drive-controlled by the drive control means; and determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that scanning is to be prohibited on the basis of a comparison result. If no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited.

[Amendment 3]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0006

[Manner of Amendment] Change

[Content of Amendment]

[0006]

In the invention of Claim 1, when a power supply is turned on, the determining means may be executed before adjustment, such as an analog process or shading correction.

[Amendment 4]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0007

[Manner of Amendment] Change

[Content of Amendment]

[0007]

According to the invention of Claim 3, an image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document includes detecting means for detecting failure of the LED elements in each of the LED blocks; and control means for prohibiting scanning if the detection unit has detected failure of LED elements in two neighboring LED blocks.

[Amendment 5]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0008

[Manner of Amendment] Change

[Content of Amendment]

[0008]

In the invention of Claim 3, the control means may prohibit a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and may permit the reading operation unless the LED block adjacent to the LED block where the detection unit has detected any faulty LED elements has any faulty LED elements.

[Amendment 6]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0009

[Manner of Amendment] Change

[Content of Amendment]

[0009]

In the invention of Claim 4, the image reading apparatus may further include a failure number detection unit that acquires the number of faulty LED elements in each LED block. The control means may prohibit the reading

operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

[Amendment 7]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0010

[Manner of Amendment] Change

[Content of Amendment]

[0010]

In the invention of Claim 1, the image reading apparatus may further include display means for displaying n LED-array failure warning thereon when the reading operation is prohibited by the control means.

[Amendment 8]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0011

[Manner of Amendment] Change

[Content of Amendment]

[0011]

According to the invention of Claim 7, an image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED

elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document includes detecting means for detecting failure of the LED elements in each of the LED blocks; and control means for prohibiting a reading operation if the detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

[Amendment 9]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0012

[Manner of Amendment] Change

[Content of Amendment]

[0012]

In the invention of Claim 7, the image reading apparatus may further include display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control means.

[Amendment 10]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0015

[Manner of Amendment] Change

[Content of Amendment]

[0015]

Fig. 4 shows the structure of the LED array 102 shown in Fig. 3. A series of white LEDs 401 arranged in series with each other in the main scanning direction and a current detection resistor 402 constitute a block 107. Each block includes I white LEDs 401, and the white LED array 102 includes N blocks arranged in parallel with each other. I × N white LEDs are uniformly arranged in series with each other in the main scanning direction to make light intensity uniform over a document illumination area. This structure forms a constant-voltage drive circuit. 402 denotes the current detection resistor that decides the magnitude of current running in the white LEDs, and the resistance is selected in accordance with the light intensity needed in the system.

【書類名】 手続補正書
【整理番号】 4540034
【提出日】 平成17年 4月22日
【あて先】 特許庁長官殿
【事件の表示】
【出願番号】 特願2002-197864
【補正をする者】
【識別番号】 000001007
【氏名又は名称】 キヤノン株式会社
【代理人】
【識別番号】 100077481
【弁理士】
【氏名又は名称】 谷 義一
【発送番号】 082419
【手続補正1】
【補正対象書類名】 明細書
【補正対象項目名】 特許請求の範囲
【補正方法】 変更
【補正の内容】
【特許請求の範囲】
【請求項１】 複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、
前記駆動制御手段により駆動制御して前記ＬＥＤアレイを流れる電流を検出する電流検出手段と、
前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し比較結果に基づきスキャン不可を判定する判定手段とを有し、
前記判定手段は、前記電流検出手段により電流が検出されない場合、及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定することを特徴とする画像読取装置。
【請求項２】 請求項１において、前記判定手段は、電源ＯＮされてから、アナプロ調整やシェーディング補正等の調整の前に実行されることを特徴とする画像読取装置。
【請求項３】 複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、
隣り合う２つの前記ＬＥＤブロックで前記検出部によって前記ＬＥＤ素子の故障を検出した場合、スキャンを実行しないようにする制御手段と
を有することを特徴とする画像読取装置。
【請求項４】 請求項３において、前記制御手段は、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障している場合には読み取り動作の実行を許可せず、前記検出部で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障していない場合には読み取り動作の実行を許可することを特徴とする画像読取装置。
【請求項５】 請求項４において、前記ＬＥＤブロック内の故障しているＬＥＤ素子の数を求める故障数検出部をさらに備え、前記制御手段は、前記ＬＥＤブロック内で故障しているＬＥＤ素子が前記故障数検出手段によって所定数よりも多く検出された場合、読み取り動作を実行しないようにすることを特徴とする画像読取装置。
【請求項６】 請求項４において、前記制御手段によって読み取り動作が実行されな

いとき、前記ＬＥＤアレイが故障していることを示す警告を表示する表示手段をさらに備えることを特徴とする画像読取装置。

【請求項７】 複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、

前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、

前記ＬＥＤブロック内で所定数以上の前記ＬＥＤ素子が故障していることが前記検出手段により検出された場合、読み取り動作を実行しないようにする制御手段と

を有することを特徴とする画像読取装置。

【請求項８】 請求項７において、前記制御手段によって読み取り動作が実行されないとき、前記ＬＥＤアレイが故障していることを示す警告を表示する表示手段をさらに備えることを特徴とする画像読取装置。

【手続補正2】

【補正対象書類名】 明細書

【補正対象項目名】 ０００５

【補正方法】 変更

【補正の内容】

【０００５】

【課題を解決するための手段】

請求項１の発明は、複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、

前記駆動制御手段により駆動制御して前記ＬＥＤアレイを流れる電流を検出する電流検出手段と、前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し比較結果に基づきスキャン不可を判定する判定手段とを有し、

前記判定手段は、前記電流検出手段により電流が検出されない場合、及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定することを特徴とする。

【手続補正3】

【補正対象書類名】 明細書

【補正対象項目名】 ０００６

【補正方法】 変更

【補正の内容】

【０００６】

請求項１の発明において、判定手段は、電源ＯＮされてから、アナプロ調整やシェーディング補正等の調整の前に実行させることができる。

【手続補正4】

【補正対象書類名】 明細書

【補正対象項目名】 ０００７

【補正方法】 変更

【補正の内容】

【０００７】

請求項３の発明は、複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、隣り合う２つの前記ＬＥＤブロックで前記検出部によ

って前記ＬＥＤ素子の故障を検出した場合、スキャンを実行しないようにする制御手段とを有することを特徴とする。

【手続補正5】
【補正対象書類名】 明細書
【補正対象項目名】 ０００８
【補正方法】 変更
【補正の内容】
【０００８】
請求項３の発明において、制御手段は、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障している場合には読み取り動作の実行を許可せず、前記検出部で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障していない場合には読み取り動作の実行を許可することができる。

【手続補正6】
【補正対象書類名】 明細書
【補正対象項目名】 ０００９
【補正方法】 変更
【補正の内容】
【０００９】
請求項４の発明において、ＬＥＤブロック内の故障しているＬＥＤ素子の数を求める故障数検出部をさらに備え、制御手段は、ＬＥＤブロック内で故障しているＬＥＤ素子が故障数検出手段によって所定数よりも多く検出された場合、読み取り動作を実行しないようにすることができる。

【手続補正7】
【補正対象書類名】 明細書
【補正対象項目名】 ００１０
【補正方法】 変更
【補正の内容】
【００１０】
請求項４の発明において、前記制御手段によって読み取り動作が実行されないとき、前記ＬＥＤアレイが故障していることを示す警告を表示する表示手段をさらに備えることを特徴とする画像読取装置。

【手続補正8】
【補正対象書類名】 明細書
【補正対象項目名】 ００１１
【補正方法】 変更
【補正の内容】
【００１１】
請求項７の発明は、複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、前記ＬＥＤブロック内で所定数以上の前記ＬＥＤ素子が故障していることが前記検出手段により検出された場合、読み取り動作を実行しないようにする制御手段とを有することを特徴とする。

【手続補正9】
【補正対象書類名】 明細書
【補正対象項目名】 ００１２
【補正方法】 変更
【補正の内容】
【００１２】
請求項７の発明において、制御手段によって読み取り動作が実行されないとき、ＬＥＤアレイが故障していることを示す警告を表示する表示手段をさらに備えることができる。

【手続補正10】
【補正対象書類名】 明細書
【補正対象項目名】 ００１５
【補正方法】 変更
【補正の内容】
【００１５】
図４は図３のＬＥＤアレイ１０２の構成を示す。主走査方向に直列に並べられた複数の白色ＬＥＤ４０１からなる白色ＬＥＤ列及び電流抵抗値４０２を１ブロック１０７とする。それが１ブロックＩ個で構成されて、Ｎ個のブロックを並列に並べた白色ＬＥＤアレイ１０２を構成したものであり、Ｉ×Ｎ個の白色ＬＥＤが、原稿照射領域内の光量を均一化するよう均等に主走査方向に直列に配置してある。本構成は、定電圧駆動の回路である。４０２は白色ＬＥＤに流す電流値を設定するための電流検出抵抗であり、システムとして必要となる光量に合った抵抗値が選定してある。

Reference No. 4540034 Dispatch No. 173923
Dispatch Date: May 17, 2005

Decision of Refusal

Patent Application No.	2002-197864
Drafting Date	May 12, 2005
JPO Examiner	Yoshiyuki KUSAKA 8323 5V00
Title of the Invention	IMAGE READING APPARATUS
Applicant	CANON KABUSHIKI KAISHA
Agent	Yoshikazu TANI (One Other)

This patent application is refused for the reason as stated in the notification of reason for refusal dated February 24, 2005.

The argument and amendment have been examined, but no basis sufficient to overthrow the previously given reason for refusal has been found.

Remark:

The applicant argued that none of cited documents 1 and 2 contains "a description that failure detection is performed for each LED block including a plurality of LEDs connected in series with each other" in the argument.

However, as described, for example, in Japanese Patent Laid-Open No. 2001-308384, performing failure detection for each block including a plurality of LEDs connected in series with each other is a well-known technology. Thus, the respect pointed out by the applicant can be easily conceived by those skilled in the art.

Consequently, the inventions in the amended claims could have been easily made from the cited documents and the well-known technology.

If the applicant has any objection against this decision, an appeal trial can be demanded to the Commissioner of the Patent Office within 30 days (90 days for residents outside Japan) from the date on which the copy of this decision was transmitted (Patent Law Section 121(1)). (Instruction based on Administrative Case Litigation Law Section 46(2))

An action demanding annulment can be instituted only against a trial decision on the appeal over this decision of refusal (Patent Law Section 178(6)).

I certify that matters described above are identical with those recorded on the file.

Date of certification: May 13, 2005

Administrative Official of Ministry of Economy, Trade and Industry: Emiko HIRASE

整理番号:4540034 発送番号:173923 発送日:平成17年 5月17日 1/E

拒絶査定

特許出願の番号	特願２００２－１９７８６４
起案日	平成１７年 ５月１２日
特許庁審査官	日下 善之 ８３２３ ５Ｖ００
発明の名称	画像読取装置
特許出願人	キヤノン株式会社
代理人	谷 義一（外 １名）

この出願については、平成１７年 ２月２４日付け拒絶理由通知書に記載した理由によって、拒絶をすべきものである。

なお、意見書及び手続補正書の内容を検討したが、拒絶理由を覆すに足りる根拠が見いだせない。

備考

出願人は意見書において、引用文献１、２には「複数のＬＥＤを直列接続したＬＥＤブロック毎に故障検知することについての記載は」ないと主張している。

しかしながら、複数のＬＥＤを直列接続したブロック毎に故障検知することは、例えば特開２００１－３０８３８４号公報にも記載されているように周知技術であり、出願人の主張する点は当業者が容易に推考可能な事項である。

しがって、補正後の各請求項にかかる発明も引用文献及び周知技術から容易に発明することができたものと認められる。

この査定に不服があるときは、この査定の謄本の送達があった日から３０日以内（在外者にあっては、９０日以内）に、特許庁長官に対して、審判を請求することができます（特許法第１２１条第１項）。

（行政事件訴訟法第４６条第２項に基づく教示）

この査定に対しては、この査定についての審判請求に対する審決に対してのみ取消訴訟を提起することができます（特許法第１７８条第６項）。

上記はファイルに記録されている事項と相違ないことを認証する。

認証日 平成17年 5月13日 経済産業事務官 平瀬 恵美子

[Name of Document] Appeal

[Reference No.] 4540034

[Date of Submission] June 10, 2005

[Addressee] Commissioner of the Patent Office

[Description of the Appeal Case]

[Application No.] Patent Application No. 2002-197864

[Kind of Appeal] Appeal case against Decision of Refusal

[Number of Claims] 5

[Appellant]

[Id. No.] 000001007

[Name] CANON KABUSHIKI KAISHA

[Agent]

[Id. No.] 100077481

[Patent Attorney]

[Name] Yoshikazu TANI

[Sub-agent]

[Id. No.] 100088915

[Patent Attorney]

[Name] Kazuo ABE

[Appeal Fee]

[Prepayment Registration No.] 013424

[Amount of Payment] 77000

[Gist of Demand] Appellant demands an appeal decision that the original decision should be cancelled and the present

application should be granted a patent.

[Reasons for Demand]

[Prosecution History]

Application: July 5, 2002

Notification of Reason for Refusal (Dispatch Date): March 4, 2005

Argument (Submission Date): April 22, 2005

Amendment (Submission Date): April 22, 2005

Decision of Refusal (Drafting Date): May 12, 2005

Delivery of Copy of Decision of Refusal (Delivery Date): May 17, 2005

Amendment: (Submission Date): June 10, 2005

[Summary of Reason for Decision of Refusal]

The reason for refusal for the original decision is that the inventions in the claims noted below of the subject application are unpatentable under Patent Law Section 29(2) since they could have been easily made by persons who have common knowledge in the technical field to which the inventions pertain, on the basis of the inventions described in Japanese Patent Laid-Open No. 11-275310 (hereinafter, referred to as "cited document 1" and Japanese Patent Laid-Open No. 2000-222686 (hereinafter, referred to as "cited document 2").

The reason will be described below.

The applicant argued that none of cited documents 1 and

2 contains "a description that failure detection is performed for each LED block including a plurality of LEDs connected in series with each other" in the argument.

However, as described, for example, in Japanese Patent Laid-Open No. 2001-308384, performing failure detection for each block including a plurality of LEDs connected in series with each other is a well-known technology. Thus, the respect pointed out by the applicant can be easily conceived by those skilled in the art.

Consequently, the inventions in the amended claims could have been easily made from the cited documents and the well-known technology.

[Reasons for which the Inventions to be Patented]

1. Descriptions of the Inventions of the Subject Application

Features of the inventions of the subject application, which have been amended by the amendment submitted together with this appeal, will be described below.

"[Claim 1] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

current-detecting means for detecting a current running in the LED array, the current-detecting means being drive-controlled by the drive control means; and

determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that scanning is to be permitted or prohibited on the basis of a comparison result,

wherein if no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited, and

wherein if the detected current value does not exceed the predetermined current threshold and the predetermined number of LED blocks including a faulty LED are not aligned, the determining means determines that scanning is to be permitted."

"[Claim 3] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array

and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and for permitting the reading operation unless the LED block adjacent to the LED block where the detection unit has detected any faulty LED elements has any faulty LED elements."

2. Grounds for Amendment

(1) Regarding Claim 1

In the description "an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other", the amendment " a plurality of LED blocks are arranged in parallel with each other" is based on Fig. 4 and paragraph [0015].

In the description "determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that scanning is to be permitted or prohibited on the basis of a comparison result", the amendment "determining that scanning is to be permitted or prohibited" is based on Fig. 6.

In the description "if no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited", the amendment "if no current is detected by the current-detecting means" is based on paragraph [0026] and step S3 in Fig. 6, and the amendment "if the detected current value exceeds the predetermined current threshold" is based on Fig. 6.

The amendment "if the detected current value does not exceed the predetermined current threshold and the predetermined number of LED blocks including a faulty LED are not aligned, the determining means determines that scanning is to be permitted" is based on paragraphs [0031] and [0032] and Fig. 6.

(2) Regarding Claim 3

In the amendment "an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other", the amendment "a plurality of LED blocks are arranged in parallel with each other" is based on Fig. 4 and paragraph [0015].

The amendment "detecting means for detecting failure of

the LED elements in each of the LED blocks" is based on paragraph [0025].

The amendment "control means for prohibiting a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and for permitting the reading operation unless the LED block adjacent to the LED block where the detection unit has detected any faulty LED elements has any faulty LED elements" is based on paragraphs [0031] and [0032] and Fig. 6.

(3) Regarding Claim 4

The amendment "the control means prohibits the reading operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block" is based on paragraphs [0027] to [0029].

(4) Regarding Claim 5

The amendment "display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control unit" is based on paragraph [0031].

[Comparison between the Inventions of the Subject Application and Cited Documents]

Cited document 1 describes that an image reading apparatus is provided in which LEDs in the colors of R, G, and B are arranged in parallel with each other (3, 4, and 5 in Fig. 1), in which a white base is read for each light

source, and in which high gradation and reproducibility is achieved even if an output level of an image sensor varies due to a change in a use environment and a time-lapse change. More specifically, if it is determined that the maximum value of image data is within a predetermined range, a lighting-up time is reset.

Cited document 2 describes that disconnection failure of an LED used for a light emission source of signal indication and failure due to short circuit are detected by accurately calculating a failure threshold of the LED without being influenced by the characteristics of the LED and the installation environment of signals. More specifically, according to the inventions described in cited document 2, a light instrument L1 (light instruments L2 to L5 have a similar structure) includes a plurality of LED blocks connected in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, as shown in Fig. 2. Failure caused by disconnection, short circuit, or partial disconnection of a light instrument is detected for each light instrument in accordance with a current value.

Japanese Patent Laid-Open No. 2001-308384 (hereinafter, referred to as "cited document 3") describes that failure detection is performed for each block including a plurality of LEDs connected in series with each other. More

specifically, if a faulty LED exists, the illumination intensity of a normal LED group increases to compensate for a reduction in the illumination intensity caused by the failure.

In each of cited document 3 and the inventions of the subject application, an apparatus including LEDs performs failure detection for each block including a plurality of LEDs connected in series with each other. In this respect, cited document 3 and the inventions of the subject application correspond to each other.

However, the inventions of the subject application are different from the cited documents and the well-known technology in that it is determined that scanning is to be prohibited if a current value detected by current-detecting means exceeds a predetermined current threshold or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned and in that it is determined that scanning is to be permitted if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are not aligned.

The inventions described in cited document 3 assume back-light. If a faulty LED exists, the illumination intensity of a normal LED group increases to compensate for

a reduction in the illumination intensity caused by the failure. In contrast, the inventions of the subject application relate to an image reading apparatus. Thus, even when a current value detected for a block does not exceed a predetermined current threshold, for which it is normally regarded as not being failure, if a predetermined number of LED blocks including a faulty LED are aligned, it is determined that failure occurs and that scanning is to be prohibited, since nonuniform light intensity largely affects reading of a document, that is, an area that cannot receive a sufficient light intensity is generated. This could not have been easily conceived from the cited documents and the well-known technology.

[Conclusion]

Consequently, the inventions of the subject application could not have been easily made by those skilled in the art on the basis of the inventions described in the cited documents.

We therefore respectfully request you to make an appeal decision to cancel the original decision and to grant a patent for the inventions of the subject application.

[List of Documents Submitted]

[No. of General Power of Attorney] 9703598

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【整理番号】 ４５４００３４
【提出日】 平成１７年 ６月１０日
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【識別番号】 ０００００１００７
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【手数料の表示】
【予納台帳番号】 ０１３４２４
【納付金額】 ７７０００
【請求の趣旨】 原査定を取り消す、本願は特許をすべきものであるとの審決を求める
【請求の理由】
【手続の経緯】

出願		平成１４年 ７月 ５日
拒絶理由の通知	（発送日）	平成１７年 ３月 ４日
意見書	（提出日）	平成１７年 ４月２２日

手続補正	（提出日）	平成１７年 ４月２２日
拒絶査定	（起案日）	平成１７年 ５月１２日
同謄本送達	（送達日）	平成１７年 ５月１７日
手続補正	（提出日）	平成１７年 ６月１０日

【拒絶査定の理由の要点】

原査定の拒絶理由は、この出願の下記の請求項に係る発明は、特開平１１－２７５３１０号公報（以下「引用文献１」という。）及び特開２０００－２２６８６号公報（以下「引用文献２」という。）に記載された発明に基づいて、当業者が容易に発明をすることができたものであるから、特許法第２９条第２項の規定により特許を受けることができない、というものです。

その理由は、

出願人は意見書において、引用文献１、２には「複数のＬＥＤを直列接続したＬＥＤブロック毎に故障検知することについての記載は」ないと主張している。

しかしながら、複数のＬＥＤを直列接続したＬＥＤブロック毎に故障検知することは、例えば特開２００１－３０８３８４号公報にも記載されているように周知技術であり、出願人の主張する点は当業者が容易に推考可能な事項である。

したがって、補正後の各請求項に係る発明も引用文献及び周知技術から容易に発明することができたものと認められる。

というものです。

【本発明が特許されるべき理由】

１ 本願発明の説明

本願発明の特徴は、本審判請求書とともに提出した手続補正書により補正した特許請求の範囲、すなわち、

「［請求項１］ 複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、

前記駆動制御手段により駆動制御して前記ＬＥＤアレイを流れる電流を検出する電流検出手段と、

前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し

比較結果に基づきスキャンの可、及び不可を判定する判定手段とを有し

前記判定手段は、前記電流検出手段により電流が検出されない場合、及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定し、

検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいない場合には、スキャン可と判定する

ことを特徴とする画像読取装置。」、及び

「［請求項３］ 複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、

前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、

前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障している場合には読み取り動作の実行を許可せず、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障していない場合には読み取り動作の実行を許可する制御手段と

を有することを特徴とする画像読取装置。」

にあります。

２ 補正の根拠

（１）請求項１について、

「複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイ」における「複数個並列に並べてなる」との補正事項は、図４及び［００１５］の記載に基づきます。

「前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し比較結果に基づきスキャンの可、及び不可を判定する判定手段」における「スキャンの可、及び不可を判定する」との補正事項は、図６に基づきます。

「前記判定手段は、前記電流検出手段により電流が検出されない場合、

及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定し」における「前記判定手段は、前記電流検出手段により電流が検出されない場合」との補正事項は、［００２６］の記載及び図６のＳ３に基づき、また、「検出された電流値が予め定めた電流閾値を超えている場合」との補正事項は、図６に基づきます。

「検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいない場合には、スキャン可と判定する」との補正事項は、［００３１］及び［００３２］の記載並びに図６に基づきます。

（２）請求項３について

「複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイ」における「複数個並列に並べてなる」との補正事項は、図４及び［００１５］の記載に基づきます。

「前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段」との補正事項は、［００２５］の記載に基づきます。

「前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障している場合には読み取り動作の実行を許可せず、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障していない場合には読み取り動作の実行を許可する制御手段」との補正事項は、［００３１］及び［００３２］の記載並びに図６に基づきます。

（３）請求項４について

「前記制御手段は、前記ＬＥＤブロック内で故障しているＬＥＤ素子が前記故障数検出手段によって所定数よりも多く検出された場合、読み取り動作を実行しないようにする」との補正事項は、［００２７］乃至［００２９］の記載に基づきます。

（４）請求項５について

「前記制御部によって読み取り動作が実行されないとき、前記ＬＥＤアレイが故障していることを示す警告を表示する表示手段」との補正事項は、［００３１］の記載に基づきます。

【本願発明と引用文献との対比】

引用文献1には、Ｒ、Ｇ、ＢのＬＥＤを並列に並べ（図１の３、４、５）、光源ごとに白地の読み取りを行い、使用環境の変化や経年劣化によってイメージセンサの出力レベルが変動しても常に高い階調性、再現性を実現できる画像読み取り部を提供することが記載されています。具体的には、画像データの最大値が所定の範囲内に入っていると判断した場合は、点灯時間の再設定を行うものです。

引用文献２には、ＬＥＤの特性や信号機の設置環境に左右されずにＬＥＤの故障限界値を正確に割り出して、信号現示の発光源に用いられたＬＥＤ断線故障、短絡による故障を検知する記載があります。具体的には、図2で示されるように複数のＬＥＤを直列接続したＬＥＤブロックを複数個並列接続して灯器Ｌ１（Ｌ２～Ｌ５も同様の構成）を構成し、この灯器単位で、灯器の断線、短絡及び半断故障を電流値に基づいて検知する記載があます。

特開２００１－３０８３８４号公報（以下「引用文献３」という。）には、複数のＬＥＤを直列接続したブロック毎に故障検知することが記載されています。具体的には、一部ＬＥＤが故障した場合には正常な側のＬＥＤ群の照度が上昇し、故障による照度低下を補うものです。

引用文献３に記載の発明と本願発明とは、ＬＥＤを使った装置において、複数のＬＥＤを直列接続したブロック毎に故障検知する点では一致します。

しかしながら、引用文献及び周知技術とは、電流検出手段により検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定し、検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいない場合には、スキャン可と判定する点で、異なります。

引用文献３に記載の発明は、バックライトを想定しており、一部ＬＥＤが故障

した場合には正常な側のＬＥＤ群の照度が上昇し、故障による照度低下を補うものであります。これに対して、本願発明は、画像読取装置に係る発明であり、そのため、ブロックとして検出された電流値が予め定めた電流閾値を超えない場合で、通常なら故障と判断しないような場合でも、故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、原稿を読み取る際に光量むらの影響が大きく出てしまう、つまり、十分な光量が得られないエリアが生じてしまうので、故障と判断してスキャン不可にすることが特徴であり、このことは、引用文献及び周知技術から容易に発明することはできません。

【むすび】

したがって、本願発明は引用文献に記載された発明から、当業者が容易に発明をすることができたものではありません。

よって、原査定を取り消す、この出願の発明をこれを特許すべきものとする、との審決を求めます。

【提出物件の目録】

【包括委任状番号】 ９７０３５９８

[Name of Document] Amendment

[Reference No.] 4540034

[Date of Submission] June 10, 2005

[Addressee] Commissioner of the Patent Office

[Description of the Case]

[Appeal No.] Objection 2005-10925

[Application No.] Patent Application No. 2002-197864

[Person Submitting the Amendment]

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[Id. No.] 100077481

[Patent Attorney]

[Name] Yoshikazu TANI

[Number of Claims Cancelled by Amendment] 3

[Amendment 1]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] Claims

[Manner of Amendment] Change

[Content of Amendment]

[Claims]

[Claim 1] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series

with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

current-detecting means for detecting a current running in the LED array, the current-detecting means being drive-controlled by the drive control means; and

determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that scanning is to be permitted or prohibited on the basis of a comparison result,

wherein if no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited, and

wherein if the detected current value does not exceed the predetermined current threshold and the predetermined number of LED blocks including a faulty LED are not aligned, the determining means determines that scanning is to be permitted.

[Claim 2] The image reading apparatus according to Claim 1, wherein when a power supply is turned on, the determining means is executed before adjustment, such as an

analog process or shading correction.

[Claim 3] An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and for permitting the reading operation unless the LED block adjacent to the LED block where the detection unit has detected any faulty LED elements has any faulty LED elements.

[Claim 4] The image reading apparatus according to Claim 3, further comprising a failure number detection unit that acquires the number of faulty LED elements in each LED block, wherein the control means prohibits the reading operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

[Claim 5]

The image reading apparatus according to Claim 3, further comprising display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control unit.

[Amendment 2]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0005

[Manner of Amendment] Change

[Content of Amendment]

[0005]

[Means for Solving the Problems]

According to the invention of Claim 1, an image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document includes current-detecting means for detecting a current running in the LED array, the current-detecting means being drive-controlled by the drive control means; and determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that

scanning is to be permitted or prohibited on the basis of a comparison result. If no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited. If the detected current value does not exceed the predetermined current threshold and the predetermined number of LED blocks including a faulty LED are not aligned, the determining means determines that scanning is to be permitted.

[Amendment 3]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0007

[Manner of Amendment] Change

[Content of Amendment]

[0007]

According to the invention of Claim 3, an image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control

on the LED array and that scans a document includes detecting means for detecting failure of the LED elements in each of the LED blocks; and control means for prohibiting a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and for permitting the reading operation unless the LED block adjacent to the LED block where the detection unit has detected any faulty LED elements has any faulty LED elements.

[Amendment 4]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0008

[Manner of Amendment] Change

[Content of Amendment]

[0008]

In the invention of Claim 3, the image reading apparatus may further include a failure number detection unit that acquires the number of faulty LED elements in each LED block. The control means may prohibit the reading operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

[Amendment 5]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0009

[Manner of Amendment] Change

[Content of Amendment]

[0009]

In the invention of Claim 3, the image reading apparatus may further include display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control unit.

[Amendment 6]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0010

[Manner of Amendment] Cancel

[Amendment 7]

[Name of Document to be Amended] Specification

[Name of Item to be Amended] 0011

[Manner of Amendment] Cancel

[Amendment 8]

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【補正をする者】
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【補正により減少する請求項の数】 3
【手続補正1】
【補正対象書類名】 明細書
【補正対象項目名】 特許請求の範囲
【補正方法】 変更
【補正の内容】
【特許請求の範囲】
【請求項１】 複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、
前記駆動制御手段により駆動制御して前記ＬＥＤアレイを流れる電流を検出する電流検出手段と、
前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し比較結果に基づきスキャンの可、及び不可を判定する判定手段とを有し、
前記判定手段は、前記電流検出手段により電流が検出されない場合、及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定し、
検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいない場合には、スキャン可と判定する
ことを特徴とする画像読取装置。
【請求項２】 請求項１において、前記判定手段は、電源ＯＮされてから、アナプロ調整やシェーディング補正等の調整の前に実行されることを特徴とする画像読取装置。
【請求項３】 複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、
前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、
前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障している場合には読み取り動作の実行を許可せず、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障していない場合には読み取り動作の実行を許可する制御手段と
を有することを特徴とする画像読取装置。
【請求項４】 請求項３において、前記ＬＥＤブロック内の故障しているＬＥＤ素子の数を求める故障数検出部をさらに備え、前記制御手段は、前記ＬＥＤブロック内で故障しているＬＥＤ素子が前記故障数検出手段によって所定数よりも多く検出された場合、読み取り動作を実行しないようにすることを特徴とする画像読取装置。

【請求項５】 請求項３において、前記制御部によって読み取り動作が実行されないとき、前記ＬＥＤアレイが故障していることを示す警告を表示する表示手段をさらに備えることを特徴とする画像読取装置。

【手続補正2】
【補正対象書類名】 明細書
【補正対象項目名】 ０００５
【補正方法】 変更
【補正の内容】
【０００５】
【課題を解決するための手段】
請求項１の発明は、複数のＬＥＤを直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、前記駆動制御手段により駆動制御して前記ＬＥＤアレイを流れる電流を検出する電流検出手段と、前記電流検出手段により検出された電流の値と予め定めた電流閾値とを比較し比較結果に基づきスキャンの可、及び不可を判定する判定手段とを有し、前記判定手段は、前記電流検出手段により電流が検出されない場合、及び検出された電流値が予め定めた電流閾値を超えている場合、及び検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいる場合には、スキャン不可と判定し、検出された電流値が予め定めた電流閾値を超えない場合で、かつ故障しているＬＥＤを有しているＬＥＤブロックが所定数並んでいない場合には、スキャン可と判定することを特徴とする。

【手続補正3】
【補正対象書類名】 明細書
【補正対象項目名】 ０００７
【補正方法】 変更
【補正の内容】
【０００７】
請求項３の発明は、複数のＬＥＤ素子を直列接続してなるＬＥＤブロックを複数個並列に並べてなるＬＥＤアレイと、前記ＬＥＤアレイを定電圧駆動制御する駆動制御手段とを有して原稿をスキャンする画像読取装置において、前記ＬＥＤブロックごとに前記ＬＥＤ素子の故障を検出する検出手段と、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障している場合には読み取り動作の実行を許可せず、前記検出手段で故障を検出されたＬＥＤ素子を有するＬＥＤブロックと隣接するＬＥＤブロック内のＬＥＤ素子が故障していない場合には読み取り動作の実行を許可する制御手段とを有することを特徴とする。

【手続補正4】
【補正対象書類名】 明細書
【補正対象項目名】 ０００８
【補正方法】 変更
【補正の内容】
【０００８】
請求項３の発明において、前記ＬＥＤブロック内の故障しているＬＥＤ素子の数を求める故障数検出部をさらに備えることができ、前記制御手段は、前記ＬＥＤブロック内で故障しているＬＥＤ素子が前記故障数検出手段によって所定数よりも多く検出された場合、読み取り動作を実行しないようにすることができる。

【手続補正5】
【補正対象書類名】 明細書
【補正対象項目名】 ０００９
【補正方法】 変更
【補正の内容】
【０００９】
請求項３の発明において、前記制御部によって読み取り動作が実行されないとき、前記ＬＥＤアレイが故障していることを示す警告を表示する表示手段をさらに備えることができる。

【手続補正6】
【補正対象書類名】 明細書
【補正対象項目名】 ００１０
【補正方法】 削除

【手続補正7】
【補正対象書類名】 明細書
【補正対象項目名】 ００１１
【補正方法】 削除

【手続補正8】
【補正対象書類名】 明細書
【補正対象項目名】 ００１２
【補正方法】 削除

Reference No. 4540034 Dispatch No. 292934
Dispatch Date: August 12, 2005

Decision to Grant a Patent

Patent Application No.	2002-197864
Drafting Date	August 4, 2005
JPO Examiner	Yoshiyuki KUSAKA 8323 5V00
Title of the Invention	IMAGE READING APPARATUS
Number of Claims	5
Applicant	CANON KABUSHIKI KAISHA
Sub-agent	Nobuyuki KATO

[Reconsideration by Examiner before Appeal]

The original decision has been cancelled.

This patent application is to be granted a patent, since no reason for refusal has been found.

I certify that matters described above are identical with those recorded on the file.

Date of certification: August 5, 2005

Administrative Official of Ministry of Economy, Trade and Industry: Emiko HIRASE

Remark: It is necessary to pay the annual fee within 30 days from the date of receipt of this document.

Japanese Patent No. 3715952

[Claims]

[Claim 1]

An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LEDs connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

current-detecting means for detecting a current running in the LED array, the current-detecting means being drive-controlled by the drive control means; and

determining means for comparing a current value detected by the current-detecting means with a predetermined current threshold and for determining that scanning is to be permitted or prohibited on the basis of a comparison result,

wherein if no current is detected by the current-detecting means, if the detected current value exceeds the predetermined current threshold, or if the detected current value does not exceed the predetermined current threshold and a predetermined number of LED blocks including a faulty LED are aligned, the determining means determines that scanning is to be prohibited, and

wherein if the detected current value does not exceed the predetermined current threshold and the predetermined number of LED blocks including a faulty LED are not aligned, the determining means determines that scanning is to be permitted.

[Claim 2]

The image reading apparatus according to Claim 1, wherein when a power supply is turned on, the determining means is executed before adjustment, such as an analog process or shading correction.

[Claim 3]

An image reading apparatus that includes an LED array in which a plurality of LED blocks are arranged in parallel with each other, each of the plurality of LED blocks including a plurality of LED elements connected in series with each other, and drive control means for performing constant-voltage drive control on the LED array and that scans a document, the image reading apparatus comprising:

detecting means for detecting failure of the LED elements in each of the LED blocks; and

control means for prohibiting a reading operation if an LED block adjacent to an LED block where the detection unit has detected any faulty LED elements has any faulty LED elements and for permitting the reading operation unless the LED block adjacent to the LED block where the detection unit

has detected any faulty LED elements has any faulty LED elements.

[Claim 4]

The image reading apparatus according to Claim 3, further comprising a failure number detection unit that acquires the number of faulty LED elements in each LED block, wherein the control means prohibits the reading operation if the failure number detecting means has detected more than a predetermined number of faulty LED elements in the LED block.

[Claim 5]

The image reading apparatus according to Claim 3, further comprising display means for displaying an LED-array failure warning thereon when the reading operation is prohibited by the control unit.